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"On the one hand" as a Cue to Anticipate Upcoming Discourse Structure

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Introduction

- Prior studies show anticipation of upcoming material within sentences (e.g. Kamide et al., 2003; Levy, 2008; Staub & Clifton, 2006)
- Between sentences: discourse creates less constraining structure than syntax
- But certain phrases constrain possible structures: *On the one hand* (OT1H), *On the other hand* (OTOH)

Main question

How do comprehenders build discourse structure?
Specifically, how fine-grained are their predictions of upcoming contrast based on OT1H?

Hypotheses

- H1** OT1H cues specific surface form “On the other hand”
- H2** OT1H cues a general contrast but structure-insensitively
- H3** OT1H cues a contrast with sensitivity to structure

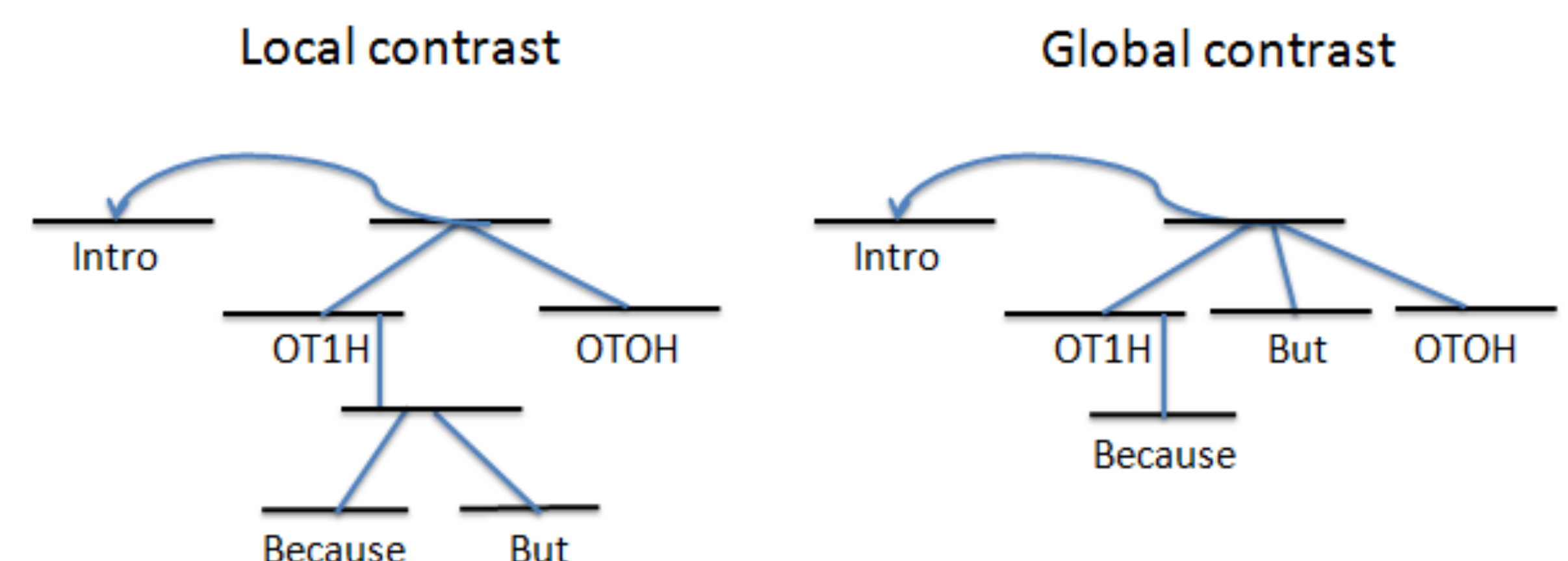
Manipulation: intervening contrast attaching to *OT1H*-clause (*global*, Ex. a) or *because*-clause (*local*, Ex. b)

Example item

Joseph is pondering whether he should take a job at the zoo. **On the one hand**, he needs the money that this job will pay, **because** he should start paying off his student loans.

- a) But he could keep looking for a nicer, better-paying job. [*global*]
- b) But the loans could be deferred for a few more months. [*local*]
- c) Also, his car needs to be serviced by the end of the month. [*none*]

On the other hand, he hates the idea of cleaning out panda cages.



Expt. 1: Coherence Judgement Study

Question

Do coherence ratings reflect presence of contrast (OTOH present/absent) and discourse structure? (local/global/none)

- 144 participants each rated 10 of 24 items on a 7-point scale
- 6 conditions: presence of OTOH-sentence varied

Results:

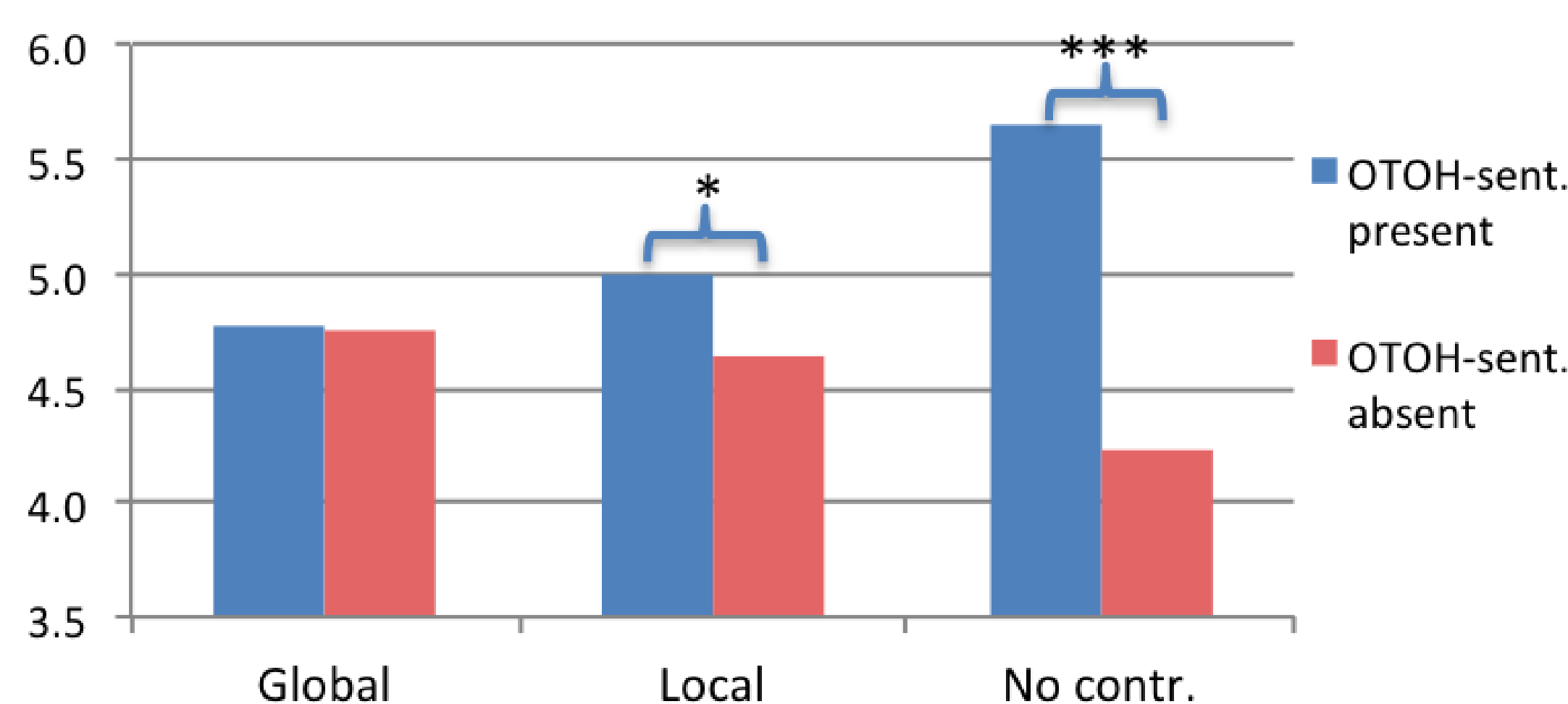


Fig. 1: Mean rating of stories per condition

- Absence of OTOH lowers ratings, depending on discourse structure: only for items without global contrast (against **H2**)

Expt. 2: Story completion study

Question

Are stories in the local condition continued more often with a contrastive sentence than stories in the global condition?

- 90 participants each completed 8 items without OTOH-sent.
- Coding: continuation type (+ or – contrast) and connective

Results:

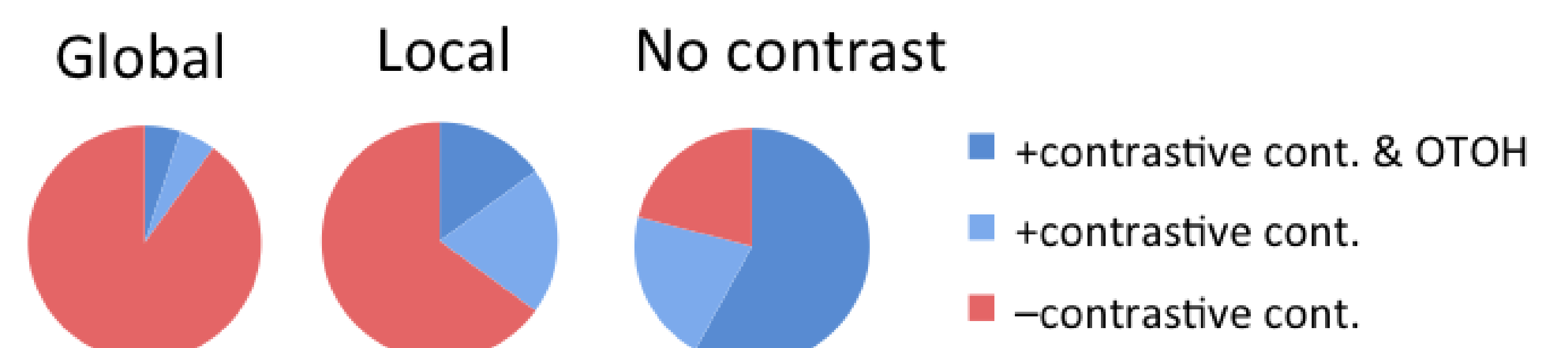


Fig. 2: Percentage of contrastive continuations per condition

- Fewer contrastive continuations in global than in local condition (evidence against **H2**, for **H3**)
- 29% of contrastive markers were connectives other than OTOH, e.g. *but*, *although*, *however* (evidence against **H1**)

Expt. 3: Eyetracking-while-reading study

Question

Do structure-sensitive expectations of contrast also influence on-line processing of OTOH?

- 32 participants read 24 items
 - Reading times of OTOH were compared
- If readers immediately build and maintain fine-grained discourse structure, then OTOH should be read slower in global condition

Results:

- RTs slower in global than local condition (evidence for **H3**)

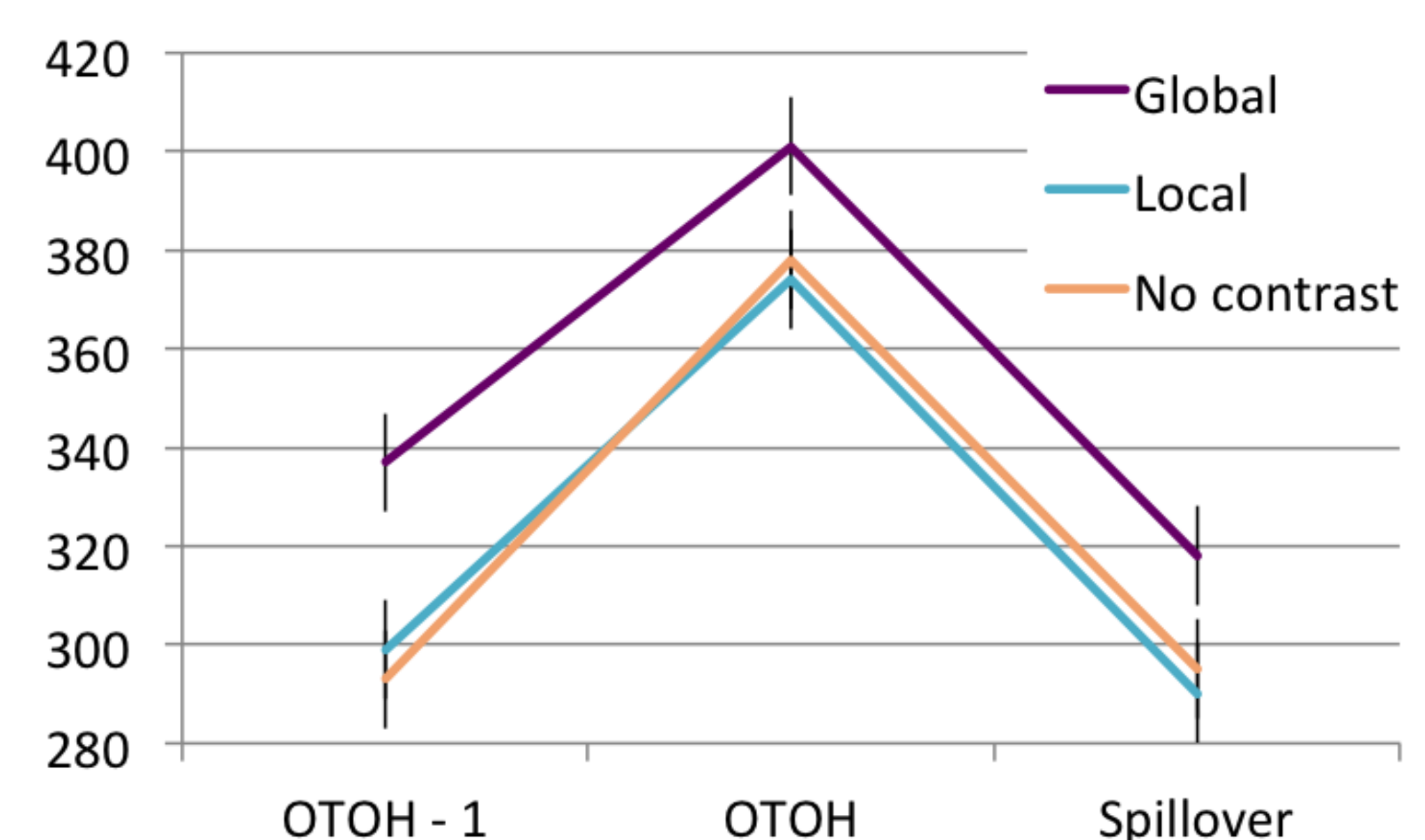


Fig. 3: Total reading time per condition

Summary and Conclusions

Offline and on-line studies indicate that:

- a local contrast does not completely satisfy expectation of contrast set up by OT1H, but a global contrast does
- evidence for **H3**: readers build fine-grained expectation of scope contrast based on OT1H

More generally, these findings suggest that:

- readers build and maintain predictions of upcoming discourse relations across multiple sentences
- these predictions are structure-sensitive and can be elicited by discourse markers